

Case 12976

Aggressive Vertebral Body Haemangioma

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Section: Musculoskeletal System

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Patient: 27 year(s), male

Clinical History

A male patient, 27 years old, suffering from progressive lower limb weakness. Initial imaging revealed a destructive vertebral body lesion associated with spinal canal compromise; thought to be malignant. The patient underwent internal fixation and biopsy was done.

Imaging Findings

The images revealed infiltration of entire D7 vertebral body and its left neural arch by a largely expanding lesion that is seen breaching the bony cortex. The vertebral body shows central wedging. Neural compromise in the form of intraspinal epidural and intra foraminal extension is noted. The spinal cord is compressed and displaced by virtue of the mass lesion; showing intra medullary bright T2 signal representing myelopathy.

The described expansile destructive vertebral lesion elicit hypointense T1 signal, hyperintense T2 signal and intense enhancement. It shows lobulated margins with central striations of hypointense signal on all imaging sequences with an impression of honeycomb pattern.

Discussion

Background:

Haemangiomas are vascular malformations that are histologically classified into: capillary,

cavernous, arteriovenous and venous types. Osseous haemangiomas are usually of capillary or cavernous types. (1)

Imaging and clinical perspective:

Typical vertebral haemangiomas are small, usually multiple, asymptomatic, incidentally discovered on imaging. These have characteristic imaging appearance reflecting their histological components. On plain radiography and computed tomography (CT) images, coarse vertical trabecular striations are typical representing bone reinforcement. Literature has variably described this appearance in different patterns as polka dot", corduroy", salt and pepper", honeycomb", etc. On magnetic resonance imaging (MRI), beside the characteristic trabecular striations, typical osseous haemangioma elicits bright signal on both T1 and T2 images reflecting intra lesional fat. The vascular component renders them even more bright on T2 signal. (2)

It is not uncommon for a vertebral body haemangioma to present on MRI, especially T1 images, with intermediate or hypointense signal due to less fat component. However such atypical haemangioma remains asymptomatic. (2)

On FDG PET, vertebral haemangioma is photopenic. It's metabolically inactive. (3)

In rare reported cases, vertebral haemangioma is aggressive. That is a term describing a haemangioma involving the entire vertebral body and extends to the neural arches. In such cases, bony expansion and ballooning are eminent with vertebral collapse, soft tissue and subsequent neural compromise. (4) (5) (6)

Identifying aggressive vertebral haemangiomas as such on MRI is a challenge especially when considering other differential more likely to present with such features. The differential diagnosis includes expansile destructive vertebral lesions: Metastases (especially renal and thyroid), Myeloma, Plasmacytoma, Lymphoma, Chordoma, Eosinophilic Granuloma, GCT, Brown tumor and Angiosarcoma. Beside a full clinical picture, imaging features may help to exclude most of these lesions. . Solitary vertebral level, commonly dorsal, entire vertebral body, extension to the pedicles, ballooning, bright T2 signal, striations and honeycombing are features of haemangioma. (7)

Outcome:

The pathology for the biopsy obtained from the presented case revealed: vascular spaces lined by flat endothelial cells and filled by blood consistent with haemangioma

Take home message:

In this case report we introduce vertebral haemangioma as a cause of myelopathy. Aggressive haemangioma should be included in the differential of expansile destructive vertebral lesions associated with myelopathy. Solitary vertebral level, commonly dorsal, entire vertebral body, extension to the pedicles, ballooning, bright T2 signal, intense enhancement, striations and honeycombing are features of haemangioma.

Final Diagnosis

Aggressive Vertebral Haemangioma

Differential Diagnosis List

Figures

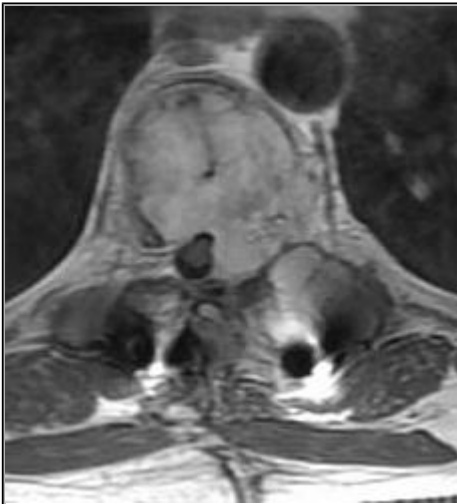
Figure 1 MR images, Axial plane



Axial T1: vertebral expansion, cortical destruction, spinal and foraminal compromise, cord compression, hypointense signal and striations

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Area of Interest: Musculoskeletal spine;
Imaging Technique: MR;
Procedure: Imaging sequences;
Special Focus: Haemangioma;



Axial T1 post contrast: intense enhancement

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Area of Interest: Musculoskeletal spine;
Imaging Technique: MR;
Procedure: Contrast agent-intravenous;
Special Focus: Haemangioma;



Axial T2: hyperintense signal and striations, impression of honeycomb pattern

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Area of Interest: Musculoskeletal spine;
Imaging Technique: MR;
Procedure: Imaging sequences;
Special Focus: Haemangioma;

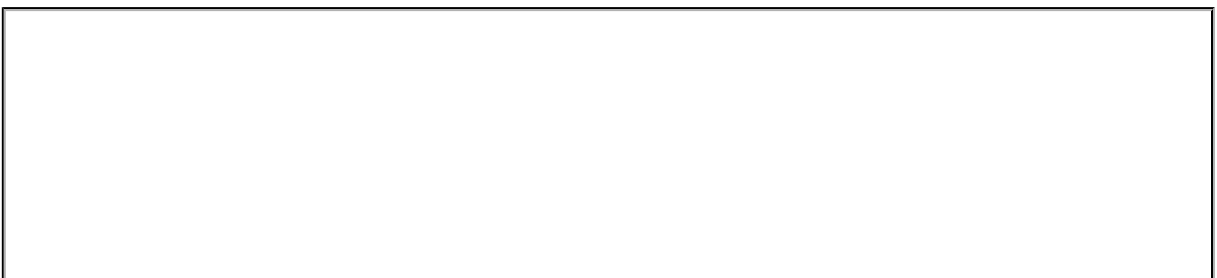


Yellow arrow: showing the spinal cord compressed and displaced by virtue of the vertebral lesion.

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Figure 2 MR T2 images, Sagittal plane

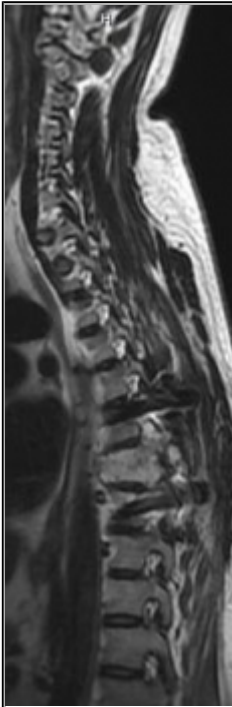




Midline Sagittal plane, T2 image: compression wedge fracture of D7 with posterior cortical bulge. Red Arrow: focal bright T2 signal within the dorsal spinal cord

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Area of Interest: Musculoskeletal spine;
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Procedure: Imaging sequences;
Special Focus: Haemangioma;



Paramidline Sagittal plane, T2 image: note the bright T2 signal of the vertebral body lesion

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Area of Interest: Musculoskeletal spine;
Imaging Technique: MR;
Procedure: Imaging sequences;

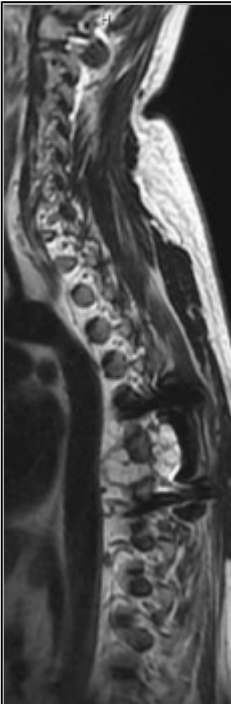
Special Focus: Haemangioma;



Paramidline Sagittal plane, T2 image: note the foraminal extension

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Area of Interest: Musculoskeletal spine;
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Procedure: Imaging sequences;
Special Focus: Haemangioma;



Paramidline Sagittal plane, T2 image: note honeycomb pattern of the lesion being of bright signal with low signal striations and lobulated outline

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Procedure: Imaging sequences;
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Figure 3 MR T1 pre and post contrast images



Midline Sagittal plane T1 image

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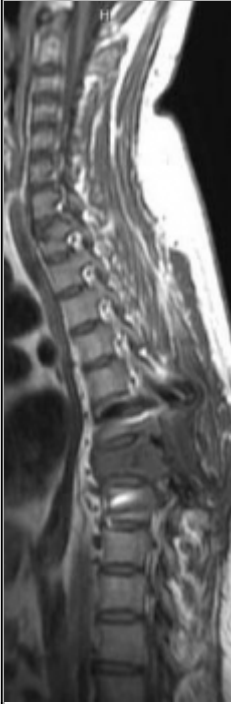
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Procedure: Imaging sequences;
Special Focus: Haemangioma;



Midline Sagittal plane T1 post contrast images showing intense enhancement

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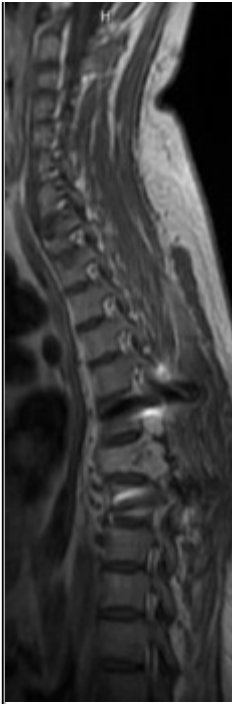
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Procedure: Imaging sequences;
Special Focus: Haemangioma;



Paramidline Sagittal plane T1 image

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Area of Interest: Musculoskeletal spine;
Imaging Technique: MR;
Procedure: Imaging sequences;
Special Focus: Haemangioma;



Paramidline Sagittal plane T1 post contrast images showing intense enhancement and foraminal extension

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Area of Interest: Musculoskeletal spine;
Imaging Technique: MR;
Procedure: Imaging sequences;
Special Focus: Haemangioma;

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Citation

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